



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------------|------------------|
| 10/789,508 | 02/26/2004 | Michael C. Park | 23627-08902 (IMV-098-C1-U) | 9100 |
| 758 FENWICK & WEST LLP SILICON VALLEY CENTER 801 CALIFORNIA STREET MOUNTAIN VIEW, CA 94041 | | | EXAMINER BELOUSOV, ANDREY | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2109 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 02/05/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|-------------------------------|-----------------------------|--|
| Office Action Summary | Application No. 10/789,508 | Applicant(s) PARK ET AL. | |
| | Examiner Andrew Belousov | Art Unit 2109 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :2/9/2006, 4/3/2006, 6/13/2005, 5/28/2004, 5/24/2004 .

DETAILED ACTION

This action is in response to the original filing of February 26, 2004. Claims 15-24 are pending and have been considered below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lassiter (U.S. Patent No. 6,624,846) in view of Katayama et al. (U.S. Patent No. 5,982,951)

Claim 15, 24: Lassiter discloses an interactive seamer for panoramic images, comprising:

a user interface (i.e. 900) having a first display area (i.e. "target scene"; 901) for displaying a panoramic image and a second display area (i.e. "control scene"; 902) for displaying two or more single view images projected from the panoramic image, the two or more single view images having overlapping portions at least partially encompassed by at least one outlined area, each pixel in the overlapping portions encompassed by the outlined area having an opacity value that is determined by the location of the pixel in the outlined area and a predetermined opacity curve; and an image seamer for

Art Unit: 2109

seaming the two or more single view images into the panoramic image, wherein the opacity values of the pixels in the overlapping portions encompassed by the outlined area can be manually adjusted by changing the size of the outlined area in the second display area. (See Fig 9, col 3 lines 30-36, col 4 lines 51-col 5 line 5, col 7 line 29-52, col 9 lines 24-26, col 9 lines 24-26, col 9 lines 55-col 10 line 9, col 10 lines 21-42, col 10 line 41-col 17 line 7).

Lassiter does not explicitly disclose that "each pixel in the overlapping portions having an opacity value that is determined by the location of the pixel in the outlines area and a predetermined opacity curve, where overlapping portions are encompassed by one outlined area." However, such limitation are shown in the teaching of Katayama ("tone correction within identified overlapping regions using conversion of correction functions") (See Abstract, Fig 4, Fig 8-9, Fig 11-23, col 1 line 49-col 2 line 41). It would have been obvious to one skilled in the art to incorporate the teaching of Katayama into the teaching of Lassiter, in order to provide combining images in a manner that the boundary of the images is inconspicuous, thereby obtaining a high-quality combined image, as such improvement is also advantageously desirable in the teaching of Lassiter for providing a panoramic picture with accurately joined single pictures.

3. Claims 16-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lassiter (U.S. Patent No. 6,624,846) in view of Klingler et al (U.S. Patent No. 5,404,316).

Claim 16: Lassiter discloses an interactive seamer for panoramic images, comprising: a user interface (i.e. 900) having a first display area for displaying a panoramic image (i.e. a panoramic scene"; 501) generated from a number of single view images (i.e. "single scenes in Fig. 4A-C), and a second display area for displaying a selected single view image projected from the panoramic image, wherein control points (i.e. pixels/points in control scene; 502) are superimposed on an area in the panoramic image (501) corresponding to the selected single view image for manually inducing changes (i.e. changes within control scene, which are represented in target scene as well) in parts of the panoramic image, the manually induced changes being independent of placement or movement of the selected single view image within the panoramic image; and an image seamer for seaming the selected single view image into the panoramic image based on user specified parameters (See Fig. 3-5, Fig. 8, col 1 lines 8-12, col 4 line 66-col 12 line 1, col 12 lines 23-51).

Lassiter does not specifically disclose "manually inducing changes in parts of the panoramic images [via control points] ... independent of placement or movement of the selected single view image." Although, any arbitrary pixels/points in control scenes could be considered as such "control points", as they are performing the same

Art Unit: 2109

functionality. However, Klingler et al. discloses that creating a custom warp using a control point on display, thereby in digital image processing any single frame image of panoramic image can be manipulated manually without moving or displacement of selected single frame image (See Fig. 15, col 17 lines 14-30). It would have been obvious to one skilled in the art to incorporate the teaching of Klingler, (“control points”, “manual warping function”) into the teaching of Lassiter, in order to improve the user’s responsiveness upon changing/modifying the image, as such improvement (i.e. using control points) is also advantageously desirable in the teaching of Lassiter to further improvement for “providing the user with a visceral sense of the control being effected.” (See col 10 lines 33-42 in Lassiter). Furthermore, manually performing changes using control points in the panoramic image without moving of single view image is well-known in an analogous art (i.e. “warping”, “morphing”, “deformation” commands in “image editing software”) for providing specialized effects on a panoramic image in an easy manner.

Claim 17: Lassiter further discloses the interactive seamer of claim 16, wherein at least one parameter adjusts the focal length of the selected portion of the panoramic image. (See. Col 3 lines 34-36, col 9 lines 30-36, col 10 lines 1-9, col 18 lines 3-21).

Claim 18: Lassiter further discloses the interactive seamer of claim 16, wherein the user interface includes a third display area [i.e. 903, 904] for displaying values of parameters (See Fig. 9).

Claim 19: Lassiter further discloses the interactive seamer of claim 16, wherein at least one parameter provides high resolution zoom to enable a user to examine artifacts without requiring a high resolution representation of the entire panoramic image. (See col 9 lines 30-36, col 9 line 66-col 10 line 1, col 12 lines 15-22)

Claim 20: Lassiter further discloses the interactive seamer of claim 16, wherein at least one parameter specifies an artificial horizon in the panoramic image. (See Fig. 9, col 3 lines 30-36, col 10 lines 1-4, col 18 lines 3-21)

Claim 21: Lassiter further discloses the interactive seamer of claim 16, wherein at least one parameter specifies the lay down order of multiple single view images seamed together to form the panoramic image. (See Fig. 9, col 3 lines 30-36, col 10 lines 1-4, col 18 lines 3-21)

Claim 22: Lassiter further discloses the interactive seamer of claim 16, wherein the user interface includes multiple view windows for simultaneously showing a perspective correct view of the selected single view image and a changed view of the single view image. (See Abstract, Fig 9)

Claim 23: Lassiter further discloses the interactive seamer of claim 16, wherein the selected single view image with manually induced changes is capable of being

Art Unit: 2109

repositioned within the panoramic image without disturbing the manually induced changes. (See Abstract, Fig 9)

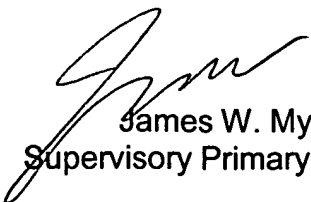
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Belousov whose telephone number is (571) 270-1695. The examiner can normally be reached on Mon-Fri (alternate Fri off) EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Myhre can be reached on (571)272-6722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AB
Jan 30, 2006


James W. Myhre
Supervisory Primary Examiner